

**Clarification of Changes to D13R
Made between June and November, 1998**

4/10/01

This document describes changes made to D13R as modeled using the regional-scale South Florida Water Management Model (SFWMMv3.5) between June 1998 and November 1998. It also summarizes the effect of these changes.

Reason for Changes and Terminology

- D13R as modeled in June 1998 (now referred to as **D13R0698**) is the regional model simulation that corresponds to the Comprehensive Everglades Restoration Plan, documented in the Central and Southern Florida Comprehensive Review Study Final Integrated Feasibility Report and Programmatic Environmental Impact Statement, April 1999.
- Subregional modeling, undertaken following the regional modeling of D13R, used regional modeling results for model input and to establish boundary conditions. When subregional modeling started using SFWMM results, some errors were discovered in the regional model representation of D13R features. These errors were corrected in a November 1998 rerun of D13R (now referred to as **D13R1198**).
- All subregional model simulations of D13R use output from D13R1198 for their input and boundary conditions
- The D13R4 scenario (Posted Jan15, 1990), and the 2010 and 2015 Case Studies (posted June 4, 1999) incorporate the corrections made in D13R1198, however were compared to the D13R0698 results (labeled simply as D13R) in performance measure set comparisons.
- Water Preserve Area Feasibility Study simulations and Indian River Lagoon Project alternatives (posted between April 2000 and February 2001), were compared to the D13R1198 results (also labeled simply as D13R) in performance measure set comparisons.
- D13R0698 and D13R1198 are compared in a performance measure set posted on the internet at <http://www.sfwmd.gov/org/pld/restudy/hpm/>. Please refer to this performance set for a complete comparison of the two simulations.

Details of Changes

- The levee between the L-37 canal and US-27 canal (north) and between the L-33 canal and US-27 canal (south), described in component O of the Restudy EIS, was inadvertently omitted in D13R0698. This was corrected in D13R1198 preventing overland flow interaction between the L-37/L-33 canals and the US-27 canal. The hydraulic basin for the US-27 canal was redefined to prevent overland flow from the marsh to the west of the US-27 canal into the US-27 canal.
- In D13R0698 the reach of the C-11 between the S-9 pump and the C-11 divide structure (S9UP) was held too high (7.5 - 8.0 ft) preventing effective operation of the flood control structure that discharges from the US-27 into this reach of the C-11 canal. In reality S9UP would be kept considerably lower (at about 5.0 ft), however in D13R1198, operations of S9UP were modified slightly to operate it between 7.25 and 7.5 ft permitting gravity flood control discharges from the US-27 canal into S9UP. The flood control structure was also modified in D13R1198 from being a fixed crest weir to a spillway to better represent its design.
- Levees around the Southern L-8 reservoir (located at c29 r55) that were omitted in D13R0698 were included in D13RNOV98.
- An error in the definition of the Dupuit Reservoir Drainage canal was corrected from having the canal defined twice in grid cell col 26 row 62 and not at all in col 25 row 62 in D13R0698 to being defined once in each cell in D13R1198.

Clarification of Changes to D13R continued ...

- The general parameter definition file was modified to provide more complete output information. In D13R1198 stages from all the modeled canals were output.

Results of Changes

- Inserting the levee between the L37/L33 and the US27 canals resulted in more flow down the L37/L33 flow-way and into Everglades National Park through the S356 pumps (see Table 1).
- Flood control discharges from the US-27 canal to the S9UP canal increased as did discharges through the S-9 pump to WCA-3A (Table 2) as a result of lowering the operational level of the S9UP canal.
- More effective flood control in the US-27 south canal meant that more water could discharge from the C-11 reservoir into the US-27 canal (Table 3).
- At the same time flow into the North Lakebelt storage area from the C-11 basin via the US-27 canal was reduced because this canal was no longer receiving overland flow from the marsh to the west of the US-27 levee (see Table 4). Reduced inflow to the North Lakebelt storage area from the US-27 canal meant there was more opportunity for runoff from the C-9 Basin and C-6 West Basin to flow into the North Lakebelt storage area (Table 4) reducing flows to Biscayne Bay via the C-9 and C-6 canals (Table 5). Less total inflow to North Lakebelt Storage area resulted in less flow from the North Lakebelt storage area to Biscayne Bay (Tables 4 and 5).
- Preventing levee seepage out of the L-8 reservoir in D13R1198 reduced groundwater flow out of the L-8 basin considerably (by 38,000 ac.ft/yr. See Table 6), slightly reducing flows to STA 1W. Reduced seepage out of the L-8 reservoir meant it had less capacity to accept backpumping from the C-51 West canal so flows from the C-51 canal to STA 1E were increased as well as outflow through the S-155 structure (Table 6). Flood control discharges from the L-8 basin to the C-51 West canal were also increased and backpumping to Lake Okeechobee from L-8 West increased slightly (Table 6).

Table 1. Everglades National Park average flows. (units = 1,000 ac.ft/yr)

Transect or structure	D13R0698	D13R1198
Inflow from WCA3 to ENP ¹ [sw+gw]	1012	1019
S-356 A,B pumps	263	294
S-332 A,B,D pumps	290	294
Groundwater outflow ENP to LEC	-192	-195
L-31N Levee Seepage, ENP to LEC	-212	-214
Net Inflow [sw+gw] (% of NSM ³)	1161 (72%)	1198 (74%)
SRS-diagonal² outflow [sw+gw] (% of NSM ⁴)	1121 (70%)	1152 (73%)

Notes

1. WCA3 to ENP transect flow is across south faces of cells: r23c16-26
2. SRS-diagonal transect flow is across west and south faces of cells: r19c16, r18c17, r17c18, r16c19, r15c20, r14c21
3. NSM net inflow = 1617 (WCA3-ENP sw+gw =1258, ENP-LEC gw = 28, ENP-LEC sw = -387)
4. NSM SRS diagonal outflow = 1577 (sw = 1566, gw = 11)

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Table 2. S-9 flows (units = 1,000 ac.ft/yr).

Location/Structure	D13R0698	D13R1198
S-9 pumping to WCA-3A	8	22
Flood control structure in US-27 (S9XS)	6	20

Table 3. C-11 Reservoir flows (units = 1,000 ac.ft/yr).

Structure	D13R0698	D13R1198
Inflow from C-11 Basin runoff (C11RIN)	68	68
Outflow to US-27 south canal (C11RO)	77	81

Table 4. North Lakebelt Storage Area flows (units = 1,000 ac.ft/yr).

Structure	D13R0698	D13R1198
Inflow		
From C-11 Basin via US-27 (LBFC11)	111	57
From C-9 Basin (C9TLBN)	32	56
From C-6 Basin West (C6WLKB)	15	33
Total inflow	158	146
Outflow		
To South Dade (LBTC2)	22	25
To Miami canal (LBTC6)	17	19
To C-9 canal (LBTC9)	12	12
To Biscayne Bay (LBBY1)	103	87
Total outflow	154	143

Table 5. Biscayne Bay flows (units = 1,000 ac.ft/yr).

Structure	D13R0698	D13R1198
Snake Creek (C9 canal through S29)	105	84
North Bay (G58+S28+S27)	135	133
Miami River (S26+225B+S25)	62	47
Central Bay (G97+S22+S123)	200	192
South Bay (S21+S21A+S20F+S20G)	273	273
Biscayne Bay Total	775	729

Table 6. Eastern Palm Beach County flows (units = 1,000 ac.ft/yr).

Structure	D13R0698	D13R1198
Groundwater flow out of L-8 Basin	39	1
Backpumping from C-51W to L-8 reservoir (C51BPR)	90	76
Pumping from L-8 west basin to Lake Okeechobee (S309)	65	61
Flood control discharge from L-8 basin to C-51 W canal (L8C51W)	63	84
S-155	173	182
Flow to STA1W	179	162
Flow to STA1E	120	133